

**Maine Behavioral Risk Factor
Surveillance System: Diabetes Prevalence
and Disease Management Analyses
2001 - 2003**

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Introduction

This report describes analyses of diabetes-related Maine Behavioral Risk Factor Surveillance System (BRFSS) data for 2001 to 2003. In addition to providing prevalence estimates by year for non-gestational diabetes and diabetes treatment, knowledge and management indicators, this year's report includes a section that examines the characteristics of those who have taken a class to manage their diabetes.

Methodology

A multi-year data file was created by extracting pertinent data for years 2001 through 2003 from the 1994 through 2003 BRFSS standardized data files. Data quality checks were performed and new variables were created with values consistent with the design of the report.

Table 1 below displays the number of people surveyed in 2001, 2002 and 2003 and these numbers after weights were applied.

Table 1

Year	Unweighted counts		Weighted counts	
	Total	Number with diabetes	Total	Number with diabetes
2001	2,420	172	964,199	64,931
2002	2,438	188	989,561	71,557
2003	2,392	195	1,006,519	74,792
All years	7,250	555	2,960,279	211,280

Diabetes prevalence estimates with 95 percent confidence intervals were computed using SAS SURVEYFREQ to accommodate the cluster sampling and complex weighting methods used by BRFSS. To conform to BRFSS standards, responses indicating gestational diabetes were counted as "No diabetes." Estimates were calculated for each year and for all three years combined. The data was weighted using the BRFSS weight variable FINALWT, which is based on statewide population estimates for twelve age-sex categories.

Diabetes treatment, knowledge and management were assessed by calculating estimates for questions in the diabetes module and questions about flu and pneumonia vaccinations. Responses for every question included in Appendix A are available for all three years. Results are displayed in the table attached as Appendix A. The table provides the weighted count, or "N," for each estimate. The N for diabetes prevalence is all persons who answered the question "Have you ever been told by a doctor that you have diabetes?" The overall N for diabetes module and vaccination questions is all persons who reported non-gestational diabetes. The counts are not always the same for all indicators because missing values are different for each indicator. Italics indicate estimates based on less than 20 cases in the numerator, 50 cases in the denominator or having a confidence interval greater than 20 points wide; these estimates are provided for illustration only and should not be reported. Sample sizes for single-year estimates often were not adequate to meet this standard, although combining the three years generally provided a large enough sample.

The follow-up analyses are presented in Appendix B. These include (1) Table B-1 Estimated non-gestational diabetes by age group, 2001-2003; (2) Tables B-2a and B-2b Estimated percent of persons having flu or pneumonia vaccination in past year for individuals with diabetes, for 2002 and 2003, respectively; and (3) Table B-3 Estimated prevalence of non-gestational diabetes in Maine by county, 1999-2003 (and accompanying graphic).

Associations between respondent characteristics and diabetes management education are presented in Appendix C. The study sample includes respondents from 2001, 2002, and 2003 who reported being told by a doctor that they had non-gestational diabetes. Respondent characteristics include demographics and access variables, risk factors (such as tobacco use, alcohol consumption, and overweight/obese), protective behaviors (such as weight control, nutrition, and exercise variables), clinical measures (such as foot exams, medical visits, and immunizations), health status measures, and duration of diabetes. Many, but not all, of the measures included in this section are available for all three years. Appendix C includes a column showing which year each variable is available.

Bivariate analyses were conducted to explore the associations between respondent characteristics and diabetes management education. Chi square statistics were calculated to identify significant differences for these characteristics with respect to receiving diabetes management education. In addition to the column for year's available, Appendix C displays the number of respondents and the estimated percent of the study population who received a diabetes management education class, and the number of respondents and estimated percent of the study population who did not receive diabetes management education.

Appendix A

Appendix B

Table B-1 Estimated non-gestational diabetes by age group, 2001-2003

	2001-2003 Combined				2001					2002					2003				
	% with response		95% CI		Unwght n's	% with response		95% CI		Unwght n's	% with response		95% CI		Unwght n's	% with response		95% CI	
Non-gestational diabetes, by age (weighted n = 2,934,147)																			
Age 18-44	1.9	1.5	--	2.4	23	1.8	1.0	--	2.6	28	2.2	1.3	--	3.0	20	1.9	1.0	--	2.8
Age 45-64	8.7	7.4	--	10.0	72	9.1	6.3	--	11.9	78	8.4	6.3	--	10.5	85	8.6	6.7	--	10.6
Age 65 and older	17.8	15.6	--	20.0	74	16.1	12.5	--	19.6	82	18.3	14.4	--	22.3	89	19.0	15.1	--	22.8

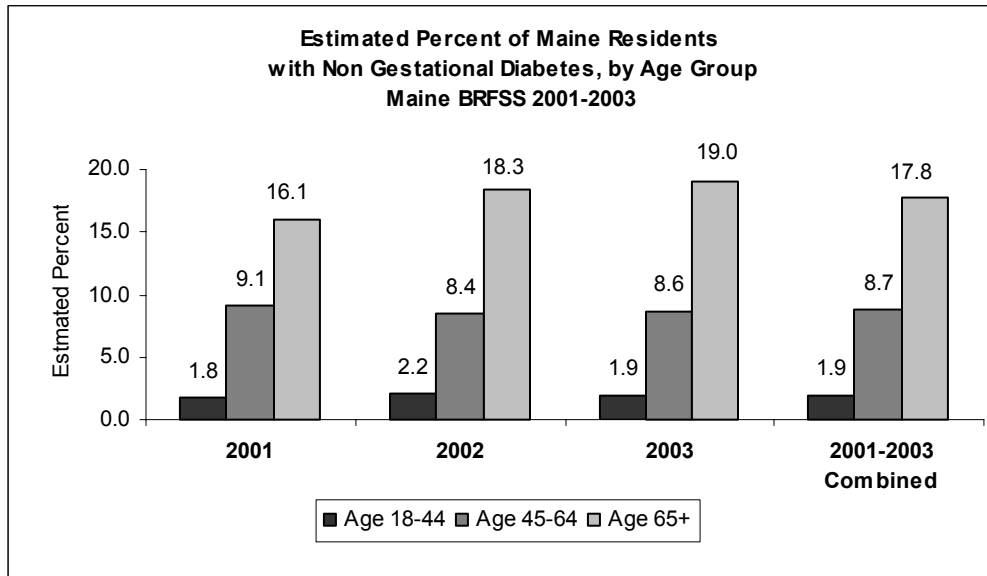


Table B-2a Estimated percent of persons having flu or pneumonia vaccination in 2002 for individuals with diabetes

2002 Maine BRFSS	Total				Non Gestational Diabetes					Gestational/ No Diabetes				
	% with response	95% CI			Unweighted n's	% with response	95% CI			Unweighted n's	% with response	95% CI		
Had a flu shot in past 12 months (weighted n = 979,626)														
Yes	36.1	34.0	--	38.3	125	67.2	59.5	--	74.8	781	33.7	31.4	--	35.9
No	63.9	61.7	--	66.1	63	32.8	25.2	--	40.5	1443	66.3	64.1	--	68.6
Ever had a pneumonia vaccination (weighted n = 903,103)														
Yes	23.7	21.8	--	25.6	99	54.0	45.7	--	62.3	447	21.2	19.3	--	23.2
No	76.3	74.4	--	78.3	82	46.0	37.7	--	54.3	1625	78.8	76.8	--	80.7

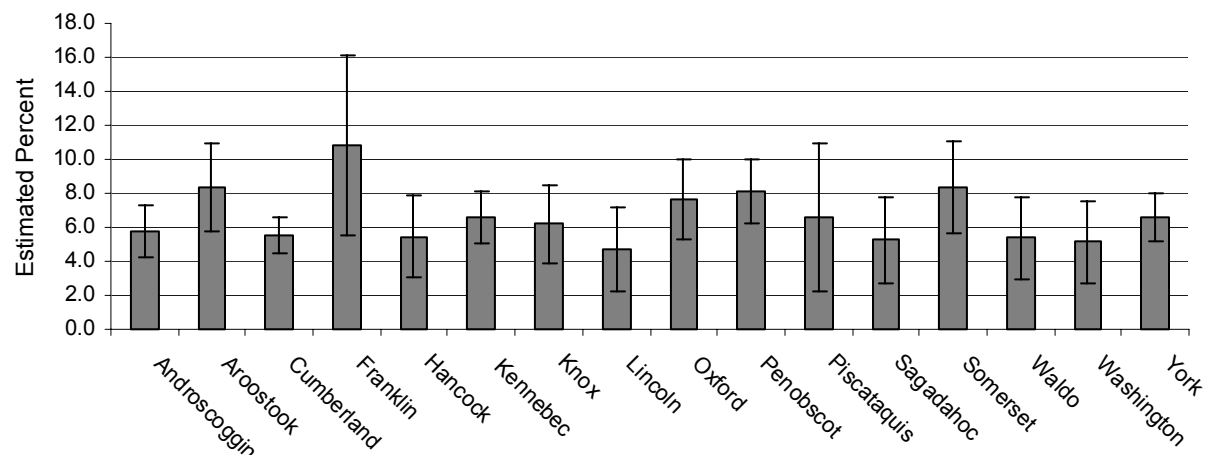
Table B-2a Estimated percent of persons having flu or pneumonia vaccination in 2003 for individuals with diabetes

2003 Maine BRFSS	Total				Non Gestational Diabetes					Gestational/ No Diabetes				
	% with response	95% CI			Unweighted n's	% with response	95% CI			Unweighted n's	% with response	95% CI		
Had a flu shot in past 12 months (weighted n = 991,510)														
Yes	37.5	35.3	--	39.7	127	66.5	59.2	--	73.8	815	35.1	32.9	--	37.4
No	62.5	60.3	--	64.7	66	33.5	26.2	--	40.8	1349	64.9	62.6	--	67.1
Ever had a pneumonia vaccination (weighted n = 915,444)														
Yes	25.8	23.7	--	28.0	97	52.8	44.9	--	60.7	449	23.6	21.4	--	25.7
No	74.2	72.0	--	76.3	90	47.2	39.3	--	55.1	1574	76.4	74.3	--	78.6

Table B-3 Estimated prevalence of non-gestational diabetes in Maine by county, 1999-2003

			Non-Gestational Diabetes		
	Unweighted n	Weighted n	% with response	95% CI	
County					
Androscoggin	67	4,163	5.8	4.2	7.3
Aroostook	52	4,749	8.4	5.8	10.9
Cumberland	132	10,207	5.5	4.5	6.6
Franklin	50	3,037	10.8	5.5	16.1
Hancock	26	2,476	5.5	3.0	7.9
Kennebec	95	5,835	6.6	5.1	8.1
Knox	50	1,886	6.2	3.9	8.5
Lincoln	38	1,180	4.7	2.3	7.2
Oxford	57	3,352	7.7	5.3	10.0
Penobscot	93	8,526	8.1	6.2	10.0
Piscataquis	11	1,012	6.6	2.2	10.9
Sagadahoc	35	1,334	5.3	2.8	7.7
Somerset	41	3,550	8.3	5.6	11.1
Waldo	38	1,608	5.4	3.0	7.8
Washington	19	1,500	5.1	2.7	7.6
York	108	7,786	6.6	5.2	8.0
Total	912	62,202	6.6	6.1	7.1

Estimated Prevalence of Non-gestational Diabetes by County **Maine BRFSS 1999-2003**



Note: Error bars indicate 95% confidence interval.

Appendix C

Diabetes Education by Demographics and Health Related Factors

Characteristic	Years available	Took a DM class		Did not take a DM class		p-value
		n	%	n	%	
Total		324	57.1	224	42.9	
Age	2001, 2002, 2003					
18 to 44		45	61.2	26	38.8	<0.0001
45 to 64		146	57.9	89	42.1	
65+		133	55.2	109	44.8	
Gender	2001, 2002, 2003					
Male		140	58.9	91	41.2	<0.0001
Female		184	55.3	133	44.7	
Income	2001, 2002, 2003					
Less than 10,000		38	57.1	30	42.9	<0.0001
\$10,000 to \$14,999		47	62.1	28	37.9	
\$15,000 to \$19,999		31	41.9	35	58.1	
\$20,000 to \$24,999		35	54.4	28	45.7	
\$25,000 to \$34,999		45	61.7	21	38.3	
\$35,000 to \$49,999		34	53.4	24	46.6	
\$50,000 to \$74,999		32	71.3	11	28.8	
\$75,000 or more		21	68.9	10	31.2	
Marital Status	2001, 2002, 2003					
Married		172	61.2	101	38.8	NA
Divorced		53	47.6	51	52.4	
Widowed		62	57.5	45	42.6	
Seperated		9	47.8	8	52.2	
Never been married		27	58.8	16	41.2	
A member of an unmarried couple		0	NA	3		
Married	2001, 2002, 2003					
Yes		172	61.2	101	38.8	<0.0001
No		151	50.6	123	49.5	
Employment status	2001, 2002, 2003					
Employed for wages		85	48.8	62	51.2	NA
Self-employed		17	49.5	15	50.5	
Out of work for more than 1 year		7	42.6	7	57.4	
Out of work for less than 1 year		9	56.9	6	43.1	
Homemaker		22	50.1	20	49.9	
Student		1	100.0	0	0.0	
Retired		131	63.2	81	36.8	
Unable to work		52	65.0	33	35.0	

Characteristic	Years available	Took a DM class		Did not take a DM class		p-value
		n	%	n	%	
Employment status	2001, 2002, 2003					
Employed		102	48.9	77	51.1	<0.0001
Retired		131	63.2	81	36.8	
Other		91	58.3	66	41.8	
Have Health Plan	2001, 2002, 2003					
Yes		299	57.7	202	42.3	<0.0001
No		24	50.5	21	49.5	
Duration of diabetes	2001, 2002, 2003					
<5 years		143	57.7	101	42.3	<0.0001
5-10 years		51	56.0	37	44.0	
>10 years		123	59.9	72	40.1	
Frequency of days smoking	2001, 2002, 2003					
Everyday		51	50.2	41	49.8	<0.0001
Some days		6	41.1	7	58.9	
Not at all		136	56.9	97	43.1	
Smoker Status	2001, 2002, 2003					
Current smoker/now smokes every day		51	50.2	41	49.8	<0.0001
Current smoker/now smokes some days		6	41.1	7	58.9	
Former smoker		136	56.9	97	43.1	
Never smoked		129	61.6	78	38.4	
Told blood pressure high	2001					
Yes		63	59.8	46	40.2	<0.0001
No		37	51.3	23	48.7	
Told blood pressure high	2003					
Yes		82	62.6	47	37.5	<0.0001
No		37	58.9	27	41.1	
Overweight or Obese	2001, 2002, 2003					
Not at risk		56	61.2	32	38.8	<0.0001
At risk		247	56.9	171	43.1	
Told blood cholestrol high	2001, 2003					
Yes		118	63.8	68	36.2	<0.0001
No		93	56.3	65	43.7	
Risk of heavy alcohol consumption	2001, 2002, 2003					
Not at risk		315	57.3	213	42.7	<0.0001
At risk		7	50.6	8	49.4	
Doctor given advice about weight	2003					
Yes, lose weight		37	59.5	23	40.5	<0.0001
Yes, gain weight		1	44.5	2	55.5	
Yes, maintain current weight		8	65.1	5	34.9	
No		74	63.2	42	36.9	

Characteristic	Years available	Took a DM class		Did not take a DM class		p-value
		n	%	n	%	
Eating fewer calories to lose weight	2003					<0.0001
Yes, fewer calories		17	55.1	10	44.9	
Yes, less fat		15	56.8	11	43.2	
Yes, fewer calories and less fat		58	71.9	27	28.1	
No		13	46.1	15	54.0	
Trying to lose weight	2003					<0.0001
Yes		70	60.7	43	39.3	
No		50	62.4	31	37.6	
Trying to maintain current weight	2003					<0.0001
Yes		33	59.3	24	40.7	
No		17	70.1	7	29.9	
Exercising to lose weight	2003					<0.0001
Yes		67	62.4	38	37.6	
No		36	56.9	29	43.1	
Participate in physical activity	2001, 2002, 2003					<0.0001
Yes		132	58.9	74	41.2	
No		71	48.1	76	51.9	
Summary index of fruits / vegetables	2002, 2003					<0.0001
Less than once per day or never		2	45.1	5	54.9	
Once but less than 3 times per day		58	48.9	46	51.1	
3 but less than 5 times per day		96	61.8	61	38.2	
5 or more times per day		68	59.4	43	40.6	
Now taking insulin	2001, 2002, 2003					<0.0001
Yes		97	71.1	30	28.9	
No		227	52.9	193	47.1	
When had last eye exam	2001, 2002, 2003					<0.0001
Within the past month(0 to 1 month ago)		98	64.3	47	35.7	
Within the past year(1 to 12 months ago)		156	60.9	91	39.1	
Within the past 2 years(1 to 2 years ago)		33	49.3	31	50.7	
2 or more years ago		27	47.0	30	53.0	
Never		8	30.3	19	69.7	
Had pneumonia vaccination	2001, 2002, 2003					<0.0001
Yes		167	60.2	113	39.8	
No		150	55.3	100	44.7	
Had flu shot	2001, 2002, 2003					<0.0001
Yes		213	58.7	140	41.3	
No		109	53.6	83	46.4	

Characteristic	Years available	Took a DM class		Did not take a DM class		p-value
		n	%	n	%	
General Health	2001, 2002, 2003					<0.0001
Excellent		12	34.7	17	65.3	
Very good		41	44.4	39	55.7	
Good		123	62.0	70	38.0	
Fair		89	54.4	73	45.6	
Poor		59	73.7	24	26.4	